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Pesticide Fact Sheet Number 7: Butylate

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16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors
Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, Science Findings

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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Washington, DC 20460

EPA

Pesticide Fact Sheet

Name of Chemical: BUTYLATE
Reason for Issuance:
Date Issued: March 22, 1984
Fact Sheet Number: 7

1. Description of chemical:

Generic Name: Butylate
Common name: butylate
Trade name: Sutan
EPA Shaughnessy Code: 041405
Chemical Abstracts Service (CAS) Number: 2008-41-5
Year of Initial Registration: 1967
Pesticide Type: Herbicide
Chemical family: Thiocarbamate
U.S. and Foreign Producers: Stauffer Chemical Company, PPG Industries, Inc.

2. Use patterns and formulations:

Application sites: Sweet corn, field corn, and popcorn
Types of formulations: Granulars, emulsifiable concentrates, and encapsulated
Types and Methods of Application: Soil incorporation, generally with discs or hooded powerdriven tillers, often in combination with atrazine and/or cyanazine herbicide. Center pivot irrigation systems can be used in some areas.
Application Rates: 3.4- 6.7 lbs ai/A
Usual carriers: Emulsifiable liquid formulations are diluted in water.

3. Science Findings:

Summary science statement:

Butylate appears to pose few, if any, acute toxicological hazards to humans or non-target wildlife. The only major concern is the lack of inhalation toxicity data. Such data has been requested in the standard.

Chemical characteristics:

Physical state:	Liquid
Color:	Yellow to amber
Odor:	Amine
Boiling point:	71° C at 10 mm Hg
Melting point:	Not applicable
Flash point:	(TOC) 110°C

Unusual handling characteristics: None. Non-corrosive, stable at normal ambient temps.

Toxicological characteristics:

Acute Effects:

Acute Oral LD_{50} - Low - (Tox Category III) (3.0 g/kg)
Acute Dermal LD_{50} - Low - (Tox Category III) (>2 g/kg)
Dermal Irritation - Not an irritant
Acute Inhalation Toxicity - data gap
Primary Eye Irritation - Caused permanent damage in 1/6 of unwashed eyes (Tox Category II)

Chronic Effects:

Oncogenicity - No dose-related effects at levels up to 320 mg/kg/day (HDT) (Highest Dose Tested) in a 24-month study.
Teratology - No effects at up to 24 mg/kg (HDT).
Reproductive Effects - No effects at up to 24 mg/kg (HDT).
Mutagenicity - data gap
Feeding Studies - 13-week study with dogs: No effects on behavior or bodyweight. No neurological opthalmological, hematological, nor blood chemistry effects. No effect on brain AChE, nor on gross organ appearance or weight. 56-week study with rats: No major effects at 10 and 30 mg/kg. HDT 180 mg/kg produced liver pericholagitis, uterine and testicular changes with focal hemorrhage. Blood clotting parameters were affected at lowest dose (10 mg/kg/day).

Major Routes of Exposure: Dermal, inhalation

Physiological and Biochemical Behavioral Characteristics:

Foliar absorption: Absorbed by leaves, but not normally applied to the foliage.

Translocation: Butylate is rapidly absorbed by the roots of the corn plant and translocated throughout the whole corn plant.

Mechanism of pesticidal action: Unknown. Inhibits growth in the meristemic region of the leaves of grassy weeds.

Metabolism and persistence in plants and animals: Metabolized rapidly to CO_2, diisobutylamine, fatty acids, conjugates of amines and fatty acids, and certain natural plant constituents. Disappears from the stems and leaves of corn plants 7 to 14 days after treatment.

Environmental Characteristics:

Adsorption and leaching in basic soil types: In sandy dry soils, butylate leached about one-third the distance that 20 cm (8 inches) of water moved. Leaching decreased as clay and organic matter increased. In heavy clay soils, butylate leached slightly downward 2.5 to 7.6 cm (1 to 3 inches) with 20 cm of water.

Microbial breakdown: Microbial breakdown plays an important role in the disappearance of butylate from soils.

Loss from photodecomposition and/or volatilization: Butylate is lost by vaporization when applied to the surface of wet soils without incorporation. Very little loss occurs after application to dry soil surfaces.

Bioaccumulation: Butylate has moderate potential for bioaccumulation in fish. After 28 days of exposure, bluegill sunfish had bioaccumulation ratios of 33X ambient in edible tissues, and 119-174X ambient in non-edible tissues.

Resultant average persistance: The half-life of butylate under crop growing conditions was 1.5 to 3 weeks in several soils. In a loam soil at 21 to 27° C (70 to 80° F) the half-life was 3 weeks.

Half-life in Water: Data not yet available.

Ecological characteristics:

Hazards to Birds: Minimal, owing to low toxicity and low exposure rates
Hazards to Aquatic Invertebrates: Minimal, owing to moderate toxicity and low exposure rates
Hazards to Fish: Not fully assessed yet. Butylate is at least moderately toxic to fish, but requested data might show a greater toxicity. If earlier studies prove accurate, and butylate is only moderately toxic to fish, the hazards to fish from the registered use patterns are low.
Potential Problems with Endangered Species: None anticipated.

Tolerance Reassessment:

List of crops and tolerances: Corn grain (including popcorn), fresh corn (including sweet corn - kernels plus cob with husk removed), and corn forage and fodder (including sweet corn, field corn, and popcorn) at 0.1 ppm.
List of food contact uses: All corn products listed above.
Results of tolerance assessment: Assuming 100% of all corn products to be treated with butylate, the dietary burden amounts to no more than .032% of the ADI. Reassessment has been conducted. No tolerance changes are needed at this time.
Problems known to have occured from use: None

4. Summary of Regulatory Position and Rationale:

Use Classification: General use classification.
Use, Formulation or Geographic Restrictions: Uses are limited to application to corn fields. No other restrictions.

Unique Label warning statements:

Manufacturing Use Products:

"Do not discharge into lakes, streams, ponds, or public waters unless in accordance with a NPDES permit. For guidance contact your regional office of the EPA."

End-Use Products:

"Harmful if swallowed. Avoid contact with skin, eyes and clothing. Aoid breathing spray mist. Wear goggles, rubber gloves and protective clothing. Wash skin with soap and water immediately after contact. Flush eyes with water."

"Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes. Cover or incorporate spills."

Data gaps exist (see below), but the Agency will not cancel or withhold registration solely because of data gaps. The available toxicity and environmental fate data indicate that butylate use is unlikely to cause severe hazards to humans or wildlife, and although this analysis of hazard cannot be considered complete until the data gaps are filled, there is sufficient justification for continuing the registration of butylate products.

5. Summary of major data gaps

An inhalation LC_{50} for rats is needed, and has been required. Other data gaps exist, but none is considered major, or as important as the lack of an inhalation LC_{50}. The inhalation LC_{50} is to be supplied by April 1985. The mutagenicity data and other data are to be supplied by October 1987.

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